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EXAMINER				
CLARK, MAXWELL A				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/820,663

Applicant(s)

KRAMER, GLEN

Examiner

MAXWELL A. CLARK

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-36 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 07 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/ISD)
Paper No(s)/Mail Date 01/03/2005
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Specification Objections

1. The abstract of the disclosure is objected to because it is repeated in the first paragraph of the summary, claim 1 and claim 25. The sheet or sheets presenting the abstract may not include other parts of the application or other material. The purpose of the abstract is to enable the United States Patent and Trademark Office and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure. Correction is required. See MPEP § 608.01(b).
2. The disclosure is objected to because of the following informalities:
 - a. The summary only repeats the claims. The summary should set out the exact nature, operation, and purpose of the invention will be of material assistance in aiding ready understanding of the patent in future searches. The brief summary should be more than a mere statement of the objects of the invention. Appropriate correction is required. See MPEP § 608.01(c).
 - b. Regarding paragraphs [0027, 0028 and 0052], “point-to-pint” should be changed to “point-to-point.”

Drawing Objections

3. Figure 1 is objected to under 37 CFR 1.83(a) because it fails to show label 103 as described in page 10, line 5 of the specification.
4. Figures 5 and 6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled

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“Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 25-36 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The data structures and procedures described in this detailed description are typically stored on a computer readable storage medium, which may be any device or medium that can store code and/or data for use by a computer system. This includes, ***computer instruction signals embodied in a transmission medium*** (with or without a carrier wave upon which the signals are modulated), see paragraph [0040]. In light of the specification the claimed subject matter is directed towards non-statutory subject matter.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 25-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

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which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure supports only hardware with only a brief mention that such hardware can be by a computer system without any adequate and enabling disclosure, the claims refer to inadequately supported options (see in particular paragraph [0040]).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-2, 4, 10-12, 13-14, 16, 22-24, 25-26, 28 and 34-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Kenny (US 2003/0007210 A1).

8. Regarding claim 1-2, 13-14 and 25-26, Kenny discloses reducing data burst overhead in optical network which includes a central node [data service hub] and at least one remote node [subscriber optical interface] (see in particular paragraph [0002]), wherein downstream data from the central node is broadcast to the remote nodes [point to multipoint optical networks], and wherein upstream data from each remote node is transmitted to the central node in a unicast manner [transfer upstream from the multipoints to the point], transmitting grant messages to a number of remote nodes, wherein a grant message for a specified remote node assigns a start time [beginning] and a duration of a transmission [transmit time] timeslot in which the specified remote node [subscriber optical interface] may transmit a upstream data burst [a certain amount of

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time within any TDMA scheme must be allocated to allow an optical transmitter] (see in particular paragraphs [0008], [0112],[0114]), receiving a number of upstream data bursts, wherein the time gap between two consecutive upstream data bursts is less than the summation of a default laser turn-on time, a default laser turn-off time, an automatic gain control (AGC) period, and a clock and data recovery (CDR) period. The invention disclosed by Kenny clearly shows and describes the AGC and laser on off times as part of the time during which no data can be transmitted, i.e. the guard band or data burst overhead. In this, the laser on off periods are overlap resulting in a reduced data burst overhead, i.e. upstream data bursts less than the summation of a default laser turn-on time, a default laser turn-off time, an automatic gain control (AGC) period, and a clock and data recovery (CDR) period (see in particular paragraph [0114] and figure 7).

9. Regarding claims 4, 16 and 28, described in the applicants specification, paragraph [0059] and illustrated by figure 9, is that the transmission timeslot start time that is earlier than the ending time of an immediately preceding transmission time slot is achieved by the over lapping the laser turn-on and turn-off periods, which is what is disclosed by Kenny (see in particular paragraph [0114] and figure 7). It is well known to those skilled in the art that in a TDMA timing scheme (see in particular paragraph [0007]) that prior to the data burst request to send and acknowledgement messages [grant messages] are sent, additionally the timeslots, beginning and end is inherently defined.

10. Regarding claims 10-12, 22-24 and 34-36, Kenny discloses receiving an actual laser turn-on time and an actual laser turn-off time from a remote node, wherein the actual laser turn-on and turn-off times specify the amount of time required by the remote node to turn on and turn off its laser, respectively, laser turn-on and turn-off times that are

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transmitted with a registration message from the remote node when the central node initially registers the remote node, grant messages that assigns a start time and a duration of a transmission timeslot based on the actual laser turn-on and turn-off times of the remote node to which the grant message is destined inherently given that in his invention data is transmitted is according to the TDMA timing scheme, specifically the time constants of two driver circuits of respective optical transmitters (see in particular paragraph [0047]).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 5-9, 17-21 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenny (US 2003/0007210 A1) in view of Haran et al. (US 2005/0249498 A1).

13. Regarding claim 5, 17 and 29, Kenny discloses the optimization of upstream optical communications (abstract) but does not specifically disclose leaving the laser on

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for consecutive upstream data burst from a common laser associated with a virtual ONU or common entity.

However, Haran discloses receiving a number of consecutive data bursts from a remote node, wherein the remote node is allowed to transmit the number of consecutive data bursts without turning off and turning on its laser between two consecutive data bursts (Haran: ¶ [0022]) for the purpose of optimizing the upstream grant procedure.

It would have been obvious to one of ordinary skill in the art at the time the application was filed to modify the invention disclosed by Kenny to include consecutive data burst without turning off the laser, as taught by Haran, to increase the efficiency in the upstream data path.

14. Regarding claims 6, 18 and 30, Kenny discloses the optimization of upstream optical communications (abstract) but does not specifically disclose allowing a remote node to transmit upstream data during the time gap without turning off and turning on its laser.

However, Haran discloses allowing the remote node to transmit upstream data during a time gap without turning off and turning on its laser (Haran: ¶ [0046]) to create savings in the optical overhead penalty.

It would have been obvious to one of ordinary skill in the art at the time the application was filed to modify the invention disclosed by Kenny to include consecutive data burst without turning off the laser, as taught by Haran, in order to achieve more efficient upstream communications between the OLU and OLT.

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15. Regarding claims 7, 19 and 31, Kenny discloses the optimization of upstream optical communications (abstract) but does not specifically disclose allowing the common laser to keep transmitting upstream data without being turned off.

However, Haran discloses allowing a common laser to keep transmitting upstream data without being turned off between consecutive transmission timeslots assigned to one or more virtual remote nodes located in the common physical remote node (several entities belonging to a signal ONU), see in particular paragraphs [0044-0046] for the purpose of eliminating grant penalties such as laser on, agc lock, cdr lock and laser off between entities.

It would have been obvious to one of ordinary skill in the art at the time the application was filed to modify the invention disclosed by Kenny to include consecutive data burst without turning off the laser, as taught by Haran, in order to achieve more efficient upstream communications between the OLU and OLT.

16. Regarding claims 8, 20 and 32, Kenny discloses the optimization of upstream optical communications (abstract) but does not specifically disclose grant messages directing laser on/off, agc and cdr functions.

However, Haran discloses grant messages containing a laser-turn-on flag and a laser-turn -off flag; wherein if a grant message's laser-turn-on flag is true, the corresponding remote node turns on its laser at the start time of its assigned transmission timeslot and transmits an AGC bit sequence and a CDR bit sequence before transmitting upstream data; wherein if a grant message's laser-turn-on flag is false, the corresponding remote node immediately starts transmitting upstream data at the start time of its assigned transmission timeslot without transmitting an AGC bit sequence and a CDR bit sequence;

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wherein if a grant message's laser-turn -off flag is true, the corresponding remote node turns off its laser after transmitting upstream data; and wherein if a grant message's laser-turn -off flag is false, the corresponding remote node continues transmitting data until the end of its assigned transmission timeslot without turning off its laser (Haran: ¶¶ [0052, 0053]) for the purpose of grand coalescence.

It would have been obvious to one of ordinary skill in the art at the time the application was filed to modify the invention disclosed by Kenny to include granting messages that direct the laser on/off, age and cdr function, as disclosed by Haran, in order to achieve the advantage of system performance by enabling or disabling the said functions for special situations during upstream communications.

17. Regarding claims 9, 21 and 33, Kenny discloses the optimization of upstream optical communications (abstract) but does not specifically disclose allowing the common laser to keep transmitting the upstream data bursts without being turned off between consecutive transmission timeslots assigned to one or more virtual remote nodes located in the common physical remote node.

However, Haran discloses allowing a common laser to keep transmitting the upstream data bursts without being turned off between consecutive transmission timeslots assigned to one or more virtual remote nodes located in the common physical remote (Haran: ¶ [0054]) for the purpose of allowing a new grant to start immediately eliminating the optical overhead between grants.

It would have been obvious to one of ordinary skill in the art at the time the application was filed to modify the invention disclosed by Kenny to include allowing the common laser to keep transmitting the upstream data bursts without being turned off

between consecutive transmission timeslots assigned to one or more virtual remote nodes located in the common physical remote node for the purpose eliminating the optical overhead between upstream optical burst communications.

Allowable Subject Matter

18. Claims 3 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art does not teach a the maximum time of the non-overlapping portion of the laser turn-on/off time being equal to or greater than twice the allowed maximum jitter of the round-trip time between the central node and a remote node.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kim et al., Darcie et al., Masucci et al., Shahar et al., Song et al., Unitt et al. and Van et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MAXWELL A. CLARK whose telephone number is (571)270-1956. The examiner can normally be reached on Monday to Thursday 7:30A.M. to 5P.M. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571) 272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wednesday, January 23, 2008

/Maxwell A. Clark/
Examiner, Art Unit 4183

/Len Tran/
Supervisory Patent Examiner, Art Unit 4183